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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,791	12/24/2003	Shang-Hycun Park	030681-613	9820
21839 7590 12/28/2007 BUCHANAN, INGERSOLL & ROONEY PC POST OFFICE BOX 1404 ALEXANDRIA, VA 22313-1404			EXAMINER GUHARAY, KARABI	
			ART UNIT 2879	PAPER NUMBER
			NOTIFICATION DATE 12/28/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/743,791

Applicant(s)

PARK ET AL.

Examiner

Karabi Guharay

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on RCE, filed on 10/09/2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Continued Examination under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/09/2007 has been entered.

Response to Amendment

Amendment, filed on 9/18/2007 has been entered.

Claims 1 and 4 are amended.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the black matrix". There is insufficient antecedent basis for this limitation in the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duboc, Jr et al. (US 5541473), and further in view of Applicant's admitted prior art (AAPA).

Regarding claim 1, Duboc discloses a field emission device (Fig 2) comprising an anode plate (250) having an anode electrode (221 of Fig 2 or 121 of Fig 1) and a fluorescent layer (122, 222a) formed on the anode electrode (see Fig 1), a cathode plate (201) where an electron emission source (202a, 202b) emitting electrons toward the fluorescent material layer and a gate electrode (212b) having a gate hole (211a, 211b) through which electrons travel; a mesh grid (214-218, lines 23-44 of column 6, see grids of US 5424605) having an electron control hole corresponding to the gate hole (211a, 211b) and adhered to the cathode plate, wherein the mesh grid is a plate (in lines 23-32 of column 6, Duboc explicitly discloses that the grid can also be formed as methods described in USPN 5425605, where grid is formed of laminated sheets and then the laminated sheets at appropriate temperature and pressure fuses into a single unit, thus forming a plate; see lines 59-62 of column 5, and lines 58-63 of column 6 of USPN 5424605) and an insulation layer (213) formed on a surface of the mesh grid (214) facing the cathode plate (see figure 1); and spacers (230) provided between the anode plate and the cathode plate where spacers are bonded in a region where phosphors are not formed, and supported by mesh grid (see figure 1) and the mesh grid contacts the cathode plate.

Though it is not explicitly specified that the spacers provide adherence of the grid to the cathode plate due to negative pressure existing between the anode plate and the cathode plate, Duboc teaches indirectly that the insulating spacer 230 supports the force caused by the differential pressure between the internal vacuum pressure and the external atmospheric pressure outside the flat CRT, further teaches that in FIG. 2, the spacer 230 is long compared to the spacing of prior art flat CRTs which use proximity focusing, which implicitly indicates that the adherence of grid close to the cathode plate is possible due to the negative pressure existing between anode and cathode plate and the spacer hold the mesh grid in that position that is the reason for having a long spacer (see lines 37-46 of column 8).

Further Duboc fails to teach black matrix layer formed on the anode electrode where spacers are bonded to the black matrix.

However, in the same field of FED display, AAPA discloses that it is conventional (in other words well known) to have phosphor and black matrix layer formed alternately on the anode electrode (see Fig 1) and the spacers are bonded to the region of the black matrix. It is further known in the art that the black matrix layers are formed between phosphor layers to provide excellent contrast in the image.

Thus, it would have been obvious to one having ordinary skill in the art the time the invention was made to incorporate black matrix layers on the anode electrode in between phosphor layers as taught by AAPA, in the device of Duboc since this will improve the quality of image by enhancing the contrast.

Regarding claims 2, Duboc teaches that grid is formed of thick metals, however, does not specifically mention invar. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use invar, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. See MPEP 2144.07.

Regarding claim 3 , Duboc Jr. discloses that the insulating layer (213) formed on the mesh grid (214-218), and is formed of ceramic (lines 56-59 of column 7), however, does not specifically mention silicon dioxide, however, it is well known that silicon dioxide is an insulating ceramic material widely used as insulating layers in FED devices.

Thus it would have been obvious to one having ordinary skill in the art at the time the invention was made to choose silicon dioxide as the insulating ceramic material since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. See MPEP 2144.07.

Further recitation "formed by printing" is drawn to a process of manufacturing, which is incidental to the claimed apparatus.

Even though product by process claims are limited by and defined by the process, determination of patentability is based on the product. It is well established that a claimed apparatus cannot be distinguished over the prior art structure by a process limitation. Consequently, absent a showing of an unobvious difference between the

claimed product and the prior art, the subject process limitation is not afforded patentable weight (see MPEP 2113).

Regarding claim 4, Duboc Jr. discloses that the insulating layer (213) formed on the mesh grid (214-218), and is formed of ceramic (lines 56-59 of column 7), however, does not specifically mention that the insulating layer is a printed silicon dioxide, however, it is well known that silicon dioxide is an insulating ceramic material widely used as insulating layers in FED devices.

Thus it would have been obvious to one having ordinary skill in the art at the time the invention was made to choose silicon dioxide as the insulating ceramic material since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. See MPEP 2144.07.

Further recitation of "printed" is drawn to a process of manufacturing, which is incidental to the claimed apparatus.

Even though product by process claims are limited by and defined by the process, determination of patentability is based on the product. It is well established that a claimed apparatus cannot be distinguished over the prior art structure by a process limitation. Consequently, absent a showing of an unobvious difference between the claimed product and the prior art, the subject process limitation is not afforded patentable weight (see MPEP 2113).

Regarding claims 5 & 6, Duboc Jr. discloses that the insulating layer (213) formed on the mesh grid (214-218), and directly contacts the mesh grid.

Response to Arguments

Applicant's arguments filed 9/18/2007 have been fully considered but they are not persuasive.

Applicant contends that Duboc's reliance on the laminated grid structure is effectively a teaching away from the use of a plate as recited in claim 1 (see Remarks page 1).

Examiner respectfully differs. Duboc Jr. teaches a laminated structure of layers for the grid where each layer is made of sheets of 0.02 inch thick glass ceramic materials layer and conductive layers, further teaches that grid can be formed by methods mentioned in USPN 5424605. USPN 5424605 explicitly teaches that laminated sheets (lines 59-63 of column 5) after being stacked and holes are formed are fired at high temperature to integrally bond the glass ceramic layers together (line 58 of column 6-line 2 of column 7), the final product is a mesh grid forming a plate.

Contact Information

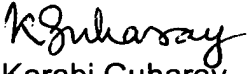
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karabi Guharay whose telephone number is 571-272-2452. The examiner can normally be reached on Monday-Friday 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Karabi Guharay
Primary Examiner
Art Unit 2879
12/18/07